

METHOD AND APPARATUS FOR MONITORING AND ADJUSTING CHAMBER IMPEDANCE

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ABSTRACT OF THE DISCLOSURE

10 A substrate processing system that includes a deposition chamber
having a reaction zone, a substrate holder that positions a substrate in the reaction
zone, a gas distribution system that includes a gas inlet manifold for supplying one or
more process gases to said reaction zone, a plasma power source for forming a
plasma from a process gas introduced into the reaction zone of the deposition
chamber and an impedance monitor that is electrically coupled to the deposition
chamber to measure an impedance level of the plasma. In a preferred embodiment,
the substrate holder is a first electrode and the gas inlet manifold is a second
15 electrode and RF power is supplied by the plasma power source to either the first or
second electrodes to form the plasma. In another preferred embodiment, the
processing system further includes a computer processor that is communicatively
coupled to the impedance monitor and to other control systems of the processing
system so that the computer processor can adjust the impedance of the deposition
20 chamber during the course of an extended wafer run if the impedance drifts outside of
a predetermined tolerance range.